

# Rhodora

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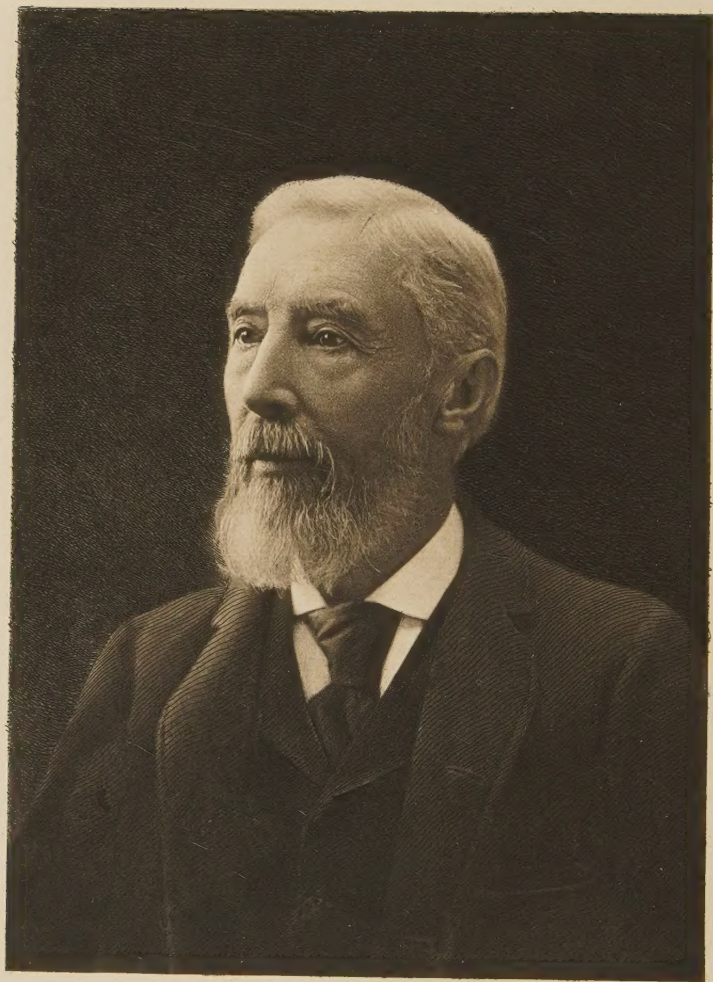
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Edwin Fayson

# Rhodora

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EDWIN FAXON.

GEORGE G. KENNEDY.

(With portrait.)

THE progress of botanical research in any region is seldom effected by the professional botanist alone. Every herbarium contains sheet after sheet of the rarest and most interesting plants from collectors whose names are associated rather with business or professional careers than with the publication of any botanical work. To such collectors, full of devotion and enthusiasm for their loved avocation, botanists owe a debt of gratitude for valuable assistance freely rendered in the solution of many a perplexing problem, and for the discovery of many an unrecognized and interesting plant. Surely these less-known investigators, often men of high attainments and rare powers of observation, deserve to be borne in remembrance, for their work may well serve as an inspiration and stimulus to faithful and unselfish study. Chief among such students of our New England flora was Edwin Faxon, whose death not long ago brought sincere sorrow to many a heart.

Edwin Faxon, son of Elisha and Hannah (Whiting) Faxon, was born in Abington, Massachusetts, September 16, 1823, and died in Willoughby, Vermont, June 12, 1898. He was of old New England stock, being a descendant in the eighth generation of Thomas Faxon, who came from England to Braintree before 1647. His early boyhood was passed in his native town, where, in the company of a much-loved relative who knew the wild flowers by name, he rambled in lane and meadow, acquiring there the interest in plants which was a source of so much pleasure to him in after years. There also, under private tuition, beginning at the early age of seven years, he laid the foundation of a sound knowledge of Greek and Latin. When a lad of thir-



teen, he removed with his parents to Boston, and entered the school of T. B. Hayward, where he continued his classical studies, and acquired proficiency in French and Italian. German was not much taught in those days, and it was characteristic of him that, later in life, when he found his ignorance of that language disadvantageous, he set to work to learn it, and obtained a good reading knowledge of it after he was fifty years old.

At the age of nineteen, he entered the office of his father, who was established as a leather merchant in Boston. In 1851 and 1852 he made a trip to Europe, spending nearly two years in travelling in the old-fashioned methods, largely on foot, through the Continent and Great Britain. This long journey appears to have satisfied his desire to see the world, for he seldom went out of New England again except on business errands; and in fact often made the statement when urged to visit other parts of the country, "New England is good enough for me."

On his return from Europe, he was admitted as partner in his father's business, and on the death of the latter in 1855, became the head of the firm. Throughout his active and successful business life he found time to indulge his taste for natural history, particularly botany, and his love for books and engravings, of which his knowledge was most thorough and accurate. When he retired from business, at the age of fifty-eight, he was well fitted, therefore, to enjoy the quiet pleasures that such tastes bring. He was never married, but made a quiet and congenial home in Jamaica Plain, happy in the society of younger brothers and sisters who shared his interests and pursuits. Here he brought together an interesting library and herbarium.

He now began to collect plants more seriously, and to explore and study the flora of New England. When Mr. Pringle began his career as a collector, the two were often together, and many were the interesting discoveries they made. With him he thoroughly explored all the ravines on the sides of Mt. Washington, and described their climb out of Tuckerman's Ravine up the wall to Bigelow's Lawn as the only foolish and dangerous adventure he ever had. After Mr. Pringle sought wider and fresher fields, Mr. Faxon still continued his explorations with indefatigable zeal, as many of our younger botanists whom he brought to their first acquaintance with our alpine flora can well attest. It is probable that no one, since Oakes and Tuckerman, has explored the White Mountains so carefully as he.

Mr. Faxon made his first trip to the White Mountains in 1843 by railroad to Portsmouth, N. H., thence on foot with a Boston friend, to Abel Crawford's house in the Notch. A party was made up for the summit of Mt. Washington, and with Tom Crawford as guide, he went over the path he was to know so well in later years. On arriving at the foot of the cone of Mt. Washington, a dense cloud gathered, but the two young men kept on to the top in the fog, while the rest of the party waited at the foot of Mt. Munroe. It gave him great satisfaction in after years to recall the fact that he had been at the summit of the mountain when only a stake in the rocks marked the top.

It was after 1875 that his regular collecting trips to the mountains began. In May or June of each year, he would visit the Crawford House before the hotel season began, and explore the woods and mountains. An account of one day's work will show his enthusiasm as a collector. In the last week of May he started to gather *Potentilla frigida* in flower in its alpine home. Up the steep path of Mt. Clinton, he found no difficulties till near the timber line, but there the soft snow was so deep he could scarcely wade through it. Emerging from the forest, he found the snow either blown off the rocks, or so hard he could walk with more freedom. Following the path to the foot of Mt. Munroe, he encountered a barrier in a precipitous snow slope, icy-frozen, extending from the top of Munroe to the bottom of Oakes' Gulf. Not daring to venture on this toboggan slide of two miles or more, he climbed the rocky summit of Munroe, and down the other side to the little plain by the ice-clad Lakes of the Clouds, and spent several hours exploring Bigelow's Lawn. He then returned by the same route to the Crawford House before nightfall. For many years, he never failed to visit the top of Mt. Washington, and of all the naturalists who collected there, he was the most constant and best known. His philosophical acquiescence in bad weather was the admiration of other less contented spirits, and he often reaped the advantage of this in the brilliant days that follow mountain storms.

With Mr. Pringle, also, he explored Mt. Mansfield, Vt., with its wonderful Smugglers' Notch, and shared with him the pleasure and glory of the interesting discoveries made there.

Mr. Faxon's most important contribution to American botany was the study and collecting of North American Sphagna. For several years previous to 1890, he had been much interested in the mosses of New England, and in 1899 sent his large collection of Sphagna to



Dr. Warnstorff in Neu-Ruppin, Germany. The value of the material was immediately recognized, and Warnstorff particularly states that his revision of the North American *Sphagna* was due principally to Mr. Faxon's sending him a systematic collection—about five hundred numbered specimens—of the *Sphagna* of Massachusetts and New Hampshire.

In 1890 the *Botanical Gazette* published Warnstorff's contributions to the knowledge of North American *Sphagna*, translated from the German by Edwin Faxon. In 1893 a prospectus of an intended distribution of sets of North American *Sphagna* was issued by Professor D. C. Eaton and Mr. Faxon. It was estimated that a full series might call for 130 different forms, but the sets as issued in 1896 comprised 172 numbers of very beautiful and carefully selected specimens, making an invaluable collection for the student of North American botany.

I well remember one day in the Alpine Garden of Mt. Washington when we had loaded ourselves with mosses and other plants, chiefly from the ice-cold brooks of that mountain plateau, a dreary fog settled down over the landscape, and we hastened to reach the carriage road before the rainy night set in. After an hour's climb over the rocks, we were in the road, and rested a bit before starting for the summit in the now increasing rain. Mr. Williams and I insisted on sharing Mr. Faxon's load, and were astonished beyond measure at the weight of wet sphagnum he was carrying (these loads were usually from thirty to forty pounds), and at the fact that he had been accustomed to just such burdens for many years in his botanical collecting. And then those pleasant evenings at the Summit House, Mr. Faxon always busy in laying out little bunches of wet sphagnum in his botanical papers, Mr. Williams and I constantly running into his room with a plant or a moss for question or identification, and he citing localities or incidents of his early mountain trips, when he with Mr. Pringle collected for the first time all the mountain rarities.

It is probable that no botanist had a better field knowledge of New England plants in certain areas than Mr. Faxon, in the years from 1872 to 1898. These areas were eastern Massachusetts; Mt. Desert, Maine; the White Mountains, New Hampshire; Smugglers' Notch, Willoughby, and the Lake Champlain shore in Vermont. He was constantly sending specimens from these districts to botanists all over the world, and was always glad to go at a moment's notice to any of these points for a particular plant for any applicant, even if personally un-



known to him. In this respect there was no one like him, and this trait of character won him the admiration and love of a wide circle of correspondents. The amount of his collecting may be known from the fact that after his death his duplicates, given to the Gray Herbarium, amounted to more than eleven thousand specimens of carefully classified plants. Mr. Faxon's first visit to Willoughby, Vermont, was in 1873, and for several summers he devoted himself to collecting the Willoughby flora. In the later years of his life he found much pleasure in the quiet beauty and delightful scenery of that unique mountain pass. It is less rude and rough than Smugglers' Notch, and all the peculiar plants are found within a mile or so of the house, while the birds that summer in the neighborhood comprise many of the rarer New England song birds. It was a treat to go with him on a June evening to the knoll overlooking the lake, and listen to the hermit thrush, while the sunset glow faded on the cliffs, and some stray warbler from the southward announced his summer arrival at Willoughby, to Mr. Faxon's great delight.

It was fitting that he should close his eyes suddenly and peacefully on this beautiful world in such a place, and on such a June evening, and leave to his friends the remembrance of a useful and happy life.

## RHADINOCLADIA, A NEW GENUS OF BROWN ALGAE.

R. E. SCHUH.

(Plate 18.)

THE marine flora of our Atlantic coast, from New Jersey north, closely resembles that of the other side of the Atlantic, though probably not half so rich in species; the finding of a new species is therefore more of an event here than there, and when that species constitutes a new genus, it is quite an epoch. Within the past twenty years the only such genera have been *Euglenopsis* and *Phaeosaccion*, and the former of these has been now absorbed in the European *Prasinocladus*. While it is impossible to say what may not be swallowed up in some terrible "OK" list of the future, the form now to be described can hardly be included in any genus hitherto recognized by ordinarily sane algologists.

Its nearest connection is *Desmotrichum*, especially *D. Balticum*; but in that species the frond is unbranched though with plentiful hairs,

while in *Rhadinocladia*, as will be seen by the following description, the frond has an abundant ramification.

**Rhadinocladia Farlowii**, n. sp. Olive brown, growing in tufts, in which the individual fronds are plumose and 12–16 mm. high. Each frond is made up of a narrow, percurrent axis, with two series of cuboidal cells near the base, gradually increasing in number until four series are found at the center. This base is 40–50  $\mu$  wide and the central part 60–70. From the axis arise 30–50 flagellate branches, 6–8 mm. long, consisting of a single series of cells (rarely two or three side by side) about 25  $\mu$  wide, and ending in two or three long hairs; near the tip the branches may bear a few ramuli. The ramification is rather irregular as the branches commonly arise singly, but they are often opposite or in a cluster of three. Only the plurilocular sporangia are known, which are muriform, and arise from transformed branches. They are nearly or quite sessile, oblong or elliptical-oblong, bluntish, 20–25  $\mu$  wide, 70–85  $\mu$  long. Except near the base the whole plant is clothed with hyaline hairs, 1–2 mm. long, of 5–10 linear cells about 12  $\mu$  wide.

Growing on Chorda, and washed ashore at Vineyard Haven, Mass., August 27, 1892.

A slide of the type is deposited in the Cryptogamic Herbarium of Harvard University, and one at Columbia University. Later another will be placed in the National Herbarium.

The writer would also tender due acknowledgement to Mr. F. Schuyler Mathews for his great courtesy in making the beautiful and accurate drawings which are reproduced in the plate accompanying this note.

BRISTOL, R. I.

EXPLANATION OF PLATE 18. *Rhadinocladia Farlowii*. Fig. 1. Terminal portion of the axis of a frond, showing general habit. Figs. 2 and 3. Portions of the same (more highly magnified) showing branches, hairs, and plurilocular sporangia in greater detail.

#### NOTE UPON A PROBABLE HYBRID OF ROSA CAROLINA L. AND ROSA NITIDA WILLD.

FRANCOIS CRÉPIN.

In my note entitled *Nouvelles remarques sur les Roses américaines* (Bull. Soc. Roy. botanique de Belgique, tome xxvii (1889), 2<sup>me</sup> partie, pp. 28 et. 29), I referred to a rose which I was inclined to consider a hybrid of *Rosa carolina* and *R. humilis*.

Now, I wish to call attention to another rose which may well be a hybrid of *Rosa carolina* and *R. nitida*. It was collected by Mr. George B. Fernald, at Foxcroft, Maine, in 1896, and Mr. M. L. Fernald has sent me several flowering specimens. The plant grows in company with or not far from *R. carolina* and *R. nitida*. I had at first considered this rose a variety of *R. carolina*, and had given it the name *setigera*, but a more recent examination has caused me to see in it a hybrid, *R. carolina*  $\times$  *nitida*. It exhibits a mixture of the characters of its two probable ancestors. The stem is completely and densely setigerous with delicate prickles like those of *R. nitida*; and the lower and middle portions of the flowering branches are more or less setigerous, with here and there very small and delicate stipular prickles. The stipules are narrow and resemble closely those of *R. carolina*, but the inflorescences are usually one-flowered, the flowers resembling much more those of *R. nitida* than those of *R. carolina*. It ought to be added that the plant is taller and more vigorous than *R. nitida*, and that the middle leaves of the flowering branches are as often 9-foliolate as in that species.

With this rose from Foxcroft, Mr. M. L. Fernald sent me specimens of a rose, collected by him in 1896, at Lexington, Maine, which I have likewise considered as variety *setigera* of *Rosa carolina*. Although Mr. Fernald did not observe at Lexington *R. carolina* nor *R. nitida*, I am, nevertheless, inclined to believe that we have here also the product of crossing of those species. But the form from Lexington is nearer *R. carolina* than is that from Foxcroft. The stem is as densely setigerous, and most of the flowering branches are as finely prickly, but the stipular prickles are much stouter, resembling those of *R. carolina*. The inflorescences are more or less multiflorous, with flowers strongly suggesting those of *R. carolina*, while the leaves also approach nearer those of that species. The action of *R. carolina* might have been stronger in the plant from Lexington than in the form from Foxcroft.

JARDIN BOTANIQUE DE L'ETAT, BRUXELLES.



THE ORCHIDACEAE OF A SERIES OF SWAMPS IN  
SOUTHERN VERMONT.

A. LEROY ANDREWS.

A DEEP cut in the Green Mountain range of southwestern Vermont furnishes an interesting study for the botanist. The floor of this little valley, which extends over a length of some six or eight miles from the vicinity of Pownal, is comparatively uniform in level and the drainage system is therefore sluggish and broken up for the most part into a series of ponds, swamps and bogs, presenting very diversified conditions of plant-growth. Springs of clear, cold water from the sides of the steeply overhanging mountains help to furnish the conditions so favorable to many members of the fastidious family of the *Orchidaceae*. A few facts gathered from a careful exploration of this region may be of interest to the student of the environment and distribution of our Orchids.

The representative species appearing uniformly throughout all the swamps is *Cypripedium spectabile*. Specimens of the pure white form of this species are frequently seen. A swamp of deep black mud, overgrown with trees of ordinary deciduous species, and traversed by cold streams furnishes also *C. pubescens* and gigantic specimens of *Habenaria hyperborea*. The occurrence of *Microstylis monophyllos* in this swamp is interesting as one of the more southerly stations of this plant in New England and from the fact that it has not been hitherto reported from this vicinity.

A wet meadow near by, also traversed by cold brooks, is in proper season empurpled and richly perfumed by abundant spikes of *Habenaria psycodes* interspersed with vigorous specimens of *H. lacera*. Here also occurs, as might be expected, what is very apparently a natural hybrid between these two species, of which I may speak more at length at some subsequent time. This same meadow furnishes a single dense clump of *H. virescens*.

A series of peat-bogs farther on, however, present the most interesting conditions and reward the botanist most richly. These bogs are mostly bare of trees, some of the firmer portions, however, being covered by a sparse growth of young tamaracks. Here in May or early June may be found quantities of *Arethusa bulbosa*, while later appear *Calopogon pulchellus* and *Pogonia ophioglossoides* in the greatest profusion, in charming contrast with the pure white, richly fragrant spikes

of *Habenaria dilatata*. Still later comes *Spiranthes Romanzoffiana*. The occurrence of this last species is especially noteworthy as being one of the extreme southern stations of this plant in New England, only a few miles from the Massachusetts line. In the higher portions of these swamps *Cypripedium acaule* grows abundantly.

Possibly a further examination of these places will yield one or two more species of Orchids. At any rate the locality is one of great interest not merely to the Orchidologist, but particularly to the student of the *Cyperaceae* and in fact to the plant-enthusiast generally.

## CRITICAL NOTES ON THE NEW ENGLAND SPECIES OF LAMINARIA.

WILLIAM ALBERT SETCHELL.

THE species of the genus *Laminaria* have been much studied, especially on the western and northern shores of Europe, and much has been done to reduce the numerous and puzzling forms within certain and recognizable specific limits. While this has been fairly well accomplished for the European species, those of the rest of the world are still in need of more study in the laboratory and the field. Particularly is this true for the forms inhabiting the coast of New England, and the regions adjacent both to the North and to the South. De la Pylaie (1824 and 1829) and Harvey (1852) have given accounts of the species of this general region, and Farlow (1881) has revised, as far as possible, these older accounts, and incorporated the additional knowledge up to that time. Farlow states, however, that he must necessarily be content "with a superficial account of the perplexing forms of this exasperating genus," since he was unable to make use of the notes furnished him on the American forms by European correspondents. Since then, however, the Scandinavian algologists have worked over their species very carefully, and Foslie, in particular, has published (1884) a detailed and illustrated account of the Norwegian species. The writer intends to follow this account rather closely in the notes on the New England species given below.

The writer began his study of the *Laminariæ* in the fall of 1887, while a graduate student at Harvard University, the topic being suggested to him by Professor Farlow. From that time until the fall of 1895, this with other topics among the *Laminariaceæ*, continued to

interest him. Since the latter date, however, he has been unable to study the species in the field and it has seemed best to place before those who may have this opportunity, the results of this work, although incomplete, in the form of notes and suggestions. The papers of Farlow (1881) and Foslie (1884) will serve as a basis for the discussion of the New England forms, while frequent reference will be made to the articles of Guignard (1892) and various statements of Kjellman with regard to this group.

The species of the genus *Laminaria* are first divided into two groups by most writers, according to the character of the blade. In one section, the *Digitatæ*, the blade is more or less broad and split longitudinally into segments; while in the other section, the *Simplices*, the blade is proportionally narrow, and normally entire. These characters are usually very marked and there is little difficulty in the case of a perfect specimen, in deciding to which of these sections it belongs. Occasionally, a digitate form persists to the time of fruiting, with an undivided blade; but in such a case, the section is made clear by the breadth and shape of the blade. In other cases, the simple forms may be split longitudinally, but this does not obscure the relationship, since the specimen, if otherwise at all perfect, shows by the proportions of the blade, that it does not belong to the digitate section.

Within each of the two main groups, the species are divided under sub-groups, according to the presence or absence of mucilage ducts in stipe or blade, or both. While there are certain conflicting statements in regard to the constancy of these latter characters in certain given species, it seems probable that these arise from the imperfect character of the investigations hitherto made, and that when all the various species have been thoroughly and carefully investigated, these contradictory statements will disappear. More study of the fresh material is needed for this, and students of this genus on the coasts of New England may, by careful attention to this matter, help greatly. Certain species have mucilage ducts in the stipe and certain others do not, the same being true for the blade. The subgroups, then, are as follows: 1. Mucilage ducts present in both stipe and blade; 2. Mucilage ducts present in the blade but not in the stipe; 3. Mucilage ducts absent from both stipe and blade. The paper of Guignard (1892) should be consulted for details concerning the structure and course of the mucilage ducts, as well as for a resumé of the distribu-



tion of these structures in the various genera and species of the *Laminariaceæ*.

The final marks for distinguishing the species under each of these groups are varied, including arrangement of hapteres, character of stipe, shape of the base of the blade, presence or absence of an intra-marginal series of alternate depressions and elevations, presence or absence of a ruffled margin, position, shape, etc., of the sori, the length of duration of the plant and the method of the renewing of the blade. That some of these characters are of little value for specific criteria, seems evident to the writer and a few words in regard to each of them may help toward a clearer understanding of these matters.

The arrangement of the hapteres, the branching outgrowths from the lower part of the stipe, fixing the plant to the substratum, varies very decidedly in the same species according to the particular habitat and substratum. The tendency toward a whorled arrangement is the normal one for all the species, but in many of them it is very much disturbed, and only makes its appearance under exceptionally favorable circumstances. The degree and regularity of the branching of the hapteres, too, is very variable and dependent upon the environment.

The character of the stipe often affords excellent means for distinguishing the species of one or other of the smaller groups. *L. longicruris* is readily to be distinguished from all other species by its hollow stipe; the stout and much flattened stipe of the forms of *L. digitata* serves to distinguish this species from others of the digitate section; and while the length of the stipe is variable in all the species, the proportions existing between the length of the stipe and the length of the blade are often a great help in distinguishing between the forms.

The shape of the blade, particularly of the basal portion, while often very variable in the same species, is yet a very satisfactory character in subdividing a species into its forms.

The ruffles along the edges of the blade of the species of the *Simplicies* group, have been used, in connection with the rows of alternate elevations and depressions within the ruffles, in distinguishing species and more often in distinguishing between the different forms or varieties of the same species, but this is a very uncertain character, since, in some species, at any rate, the presence or absence of these characters depends on the season. In *L. Agardhii* and in *L. saccharina* of the

New England coast, the writer has found that the summer form is usually ample, with ruffles and rows of indentations fully developed; but in August a change takes place and this summer blade is replaced by a winter blade which is perfectly plane and devoid of both of these features. Again, in the spring, this plane blade is replaced by the ruffled and indented form, and it is possible, accordingly, to find at these seasons fronds which show blades of both kinds in varying proportions. This seems to be a sort of seasonal dimorphism.

The duration of the species of *Laminaria* has never been carefully investigated; it probably varies very much among the species of the genus. *L. longicuris* is credited with being an annual plant, while *L. saccharina* is biennial at least, and is probably perennial. *L. digitata* is certainly perennial and has rings in the lower portion of the stipe which are probably rings of growth. *L. stenophylla* and *L. intermedia* seem to be the annuals among our digitate *Laminariae*, while *L. platymeris* is certainly perennial.

The perennial species all show the phenomenon of the renewing of the blade, due to a cessation of the growth during the latter part of the winter, the thickening of the tissues of the blade and usually the formation of sori. In the spring, the active intercalary growth is resumed by the inner tissues. The result is that the old thick, fruited blade is carried up on the summit of the new thin, as yet usually sterile blade, and the constriction between the two as well as the difference in texture between the two blades, makes this a very striking phenomenon in the majority of species. The digitate forms with mucilage glands in the stipe show the renewal in a much more striking fashion than do the digitate species without the ducts in the stipe, as Foslie (1884, pp. 26-28 and pl. 1, f. 1, pl. 3, f. 4, pl. 4, f. 1, pl. 5, f. 1, 2, pl. 10, f. 3-10), has shown. A similar difference exists in the cases of *L. digitata* and *L. platymeris* of the New England coast. In the perennial (or biennial?) form of the *Simplices* group, the renewing of the blade in the spring is equally pronounced, the plane thick blade of the winter being replaced by the thin, ample, ruffled, and indented blade of the spring and summer. In these forms, an almost equally pronounced renewing takes place in the early or later autumn, as mentioned above, when the thick, ruffled, indented and often fruited blade of the summer is replaced by the fairly thick plane blade of the early winter. The renewing at these seasons is found even in young specimens (cf. Foslie, loc. cit., pl. 10, f. 3-10).

Many cases of distortion of the species of *Laminaria* and of other species of the *Laminariaceæ*, are to be met with in any extensive collecting. Spiral forms both of blade and of stipe are often found, as well as the trilaminate forms, both of the digitate and of the simple species. Bifurcate forms are rarer, but do occur in the digitate species. They arise from the blade being split deeper than usual, that is even down through the transition place into the stipe, while the plant is still young and the tissues are still capable of a considerable amount of growth. These forms have even received varietal names from the earlier algologists.

( *To be continued.* )

## NOTES ON THE DISTRIBUTION OF SOME OF THE RARER PLANTS OF CENTRAL MASSACHUSETTS.

ROLAND M. HARPER.

DURING two seasons of botanizing in Worcester County and adjacent territory, I have met with quite a number of plants which, while already known to occur in the counties or states in which I collected them, are perhaps so local in their distribution that new stations for them may be of more or less interest to any one who makes a study of the geographical and altitudinal distribution of the flora of New England.

Most of these plants have hitherto been known in Worcester County from only one town, or have been reported by only one observer; and an examination of the more recent local floras of adjacent states and counties has shown me that they are, for the most part, little known in those regions also. I have therefore thought it worth while to place on record some of my observations on a few such plants for comparison with those of other botanists.

The lists of stations here given may be regarded rather as tending to fill lacunæ in our present knowledge of the distribution of the plants under consideration, than as furnishing actual extensions of range. All the plants mentioned have been collected in 1899 unless otherwise specified.

*Botrychium matricariæfolium*, Braun. Rich damp woods, Southbridge, August 13, 1898 (altitude 520 feet); only two or three specimens seen. This seems to be the southernmost known station for



this species in New England, as it has not been reported from Rhode Island or Connecticut.

*Lycopodium inundatum*, L. Sandy shore of Lead Mine Pond, Sturbridge, July 31, 1898; also in a wet sandy place in another part of the same town, August 28, 1898.

*Isoetes echinospora*, var. *Braunii*, Engelm. During last July and August I found this interesting and comparatively little-known plant in Worcester County in a number of stations and under a variety of conditions. I have seen it in muddy, sandy, and rocky bottoms of brooks and rivers, in Southbridge, Sturbridge, Dudley, and Brookfield, at altitudes ranging from 395 feet in the Quinebaug River in Dudley to 640 feet in Cohasse Brook in Southbridge. Some of the specimens observed grew above low-water mark, and were left high and dry by the natural subsidence of the water in dry weather. This plant has been previously reported in Worcester County only from Lake Quinsigamond, by Dr. Stone.

*Sagittaria graminea*, Mx. In muddy places or under water, Dudley, Southbridge, and Brookfield. I found the flowering, leaf-bearing form near the Quinebaug River in Dudley, July 30, but elsewhere I have seen only the submersed sterile form with phyllodia. On September 4, in company with Dr. Stone, I found this form on the sandy bottom of Quaboag Lake, about three feet below the surface. How the plant perpetuates itself in such a situation is an interesting question.

*Panicum xanthophyllum*, Gray. Dry open woods, etc., Southbridge. This plant is also unknown in Rhode Island and Connecticut, and has been reported in Massachusetts only from Princeton and Framingham.

*Oryzopsis asperifolia*, Mx. In woods, Oxford, Southbridge, Sturbridge, and Brookfield. Previously known in Worcester County only on Mount Wachusett.

*Oryzopsis melanocarpa*, Muhl. Rocky woods, Sturbridge, July 23 (altitude 920 feet). Previously reported from Princeton.

*Muhlenbergia Willdenovii*, Trin. Rich woods, Dudley, August 27.

*Muhlenbergia diffusa*, Schreber. Dry fields, Southbridge, August 31.

*Glyceria acutiflora*, Torr. Muddy ditch in meadow, Southbridge, June 23 (altitude 660 feet).

*Scirpus sylvaticus*, L. Wet meadows, Southbridge, etc., not rare.

*Eriophorum alpinum*, L. Many fine specimens of this interesting plant, some of them 16 inches tall, were found in a sphagnous meadow in Dudley, June 11, at an altitude of only 675 feet, in latitude  $42^{\circ} 3' 45''$ . This seems to be the southernmost known station for this species in North America, with the exception of one in Connecticut (Willington), which is about ten miles farther south.

*Eriophorum vaginatum*, L. Cedar swamp, Charlton, May 20 (altitude 640 feet); also near the summit of Mount Monadnock, N. H., July 3 (altitude about 3150 feet).

*Eriophorum gracile*, Koch (the type). Cool, wet meadows, Southbridge, Charlton, etc. In flower May 10, and fruiting the same month.

*Carex fusca*, All. Wet meadow near Quinebaug River, Dudley, June 11; Quaboag River marshes, Brookfield, June 18. The Brookfield specimens (which are referred by Mr. Fernald to this species) mature apparently about two weeks later than the others, and have the terminal spike entirely staminate.

*Carex arctata*, Boott. Rich woods on east side of Hatchet Hill, Southbridge, May 21; rare. This station is about a quarter of a mile from Connecticut, in which state (as well as in Rhode Island) the plant has not been reported.

*Juncus Canadensis*, var. *coarctatus*, Engelm. Wet woods, Southbridge, July 29 (altitude 600 feet); a very small form, with filiform stems (3 to 4 inches tall), and 1-4 few-flowered heads. This variety has been previously reported in the county only from Princeton, in which town I have collected it also.

*Luzula vernalis*, DC. Rich moist woods, Southbridge (altitude about 500 feet), rare. Previously reported from Mount Wachusett, where I have also found it, growing with *Panicum xanthophysum* and *Oryzopsis asperifolia*, at an altitude of about 1975 feet.

*Goodyera repens*, var. *ophioides*, Fernald. (*G. repens* of the Manual.) Rich coniferous woods, Southbridge (altitude 660 feet).

*Corallorhiza innata*, R. Br. Cool wet woods, Southbridge. May 14 and 20. Only two stations, with one or two plants at each (altitudes 640 and 500 feet).

*Polygonella articulata*, Meisn. Dry sandy soil along railroads, Dudley and Douglas, Mass., Thompson, Conn., and Burrillville, R. I., ascending to 590 feet in Douglas.

*Liriodendron Tulipifera*, L. On August 6 I found numerous young trees of this species in Burrillville, R. I., along the east side of Wallum Pond, in woods of apparently about five years' growth; and a little further search revealed a few similar specimens just across the line in Douglas, Mass., which is probably very near the north-eastern limit of the species.

*Ranunculus Pennsylvanicus*, L.f. Wet clayey soil, Southbridge, July 29. Credited only to Barre in the Worcester County flora.

*Adlumia cirrhosa*, Raf. Shady, rocky woods, Southbridge, June 7.

*Dentaria diphylla*, L. Northeast side of Shumway Hill, Sturbridge, May 28.

*Alyssum calycinum*, L. Several specimens in Oak Ridge Cemetery, Southbridge, June 6; only in ground which had been recently turned up and raked over; accompanied by a few specimens of its relative, *Camelina sativa*, Crantz.

*Dalibarda repens*, L. "Gulf Woods," Southbridge (elevation 500 feet); quite abundant in certain spots.

*Potentilla palustris*, L. Marshes and muddy banks of the Quaboag River, Brookfield and West Brookfield, May 30 (altitude 610 feet); also near Quinebaug River, Sturbridge, July 23 (altitude 575 feet).

*Poterium Canadense*, L. Wet meadows, near Quaboag Lake and its tributaries, Brookfield and North Brookfield, June 18. No definite station is assigned to this plant in either edition of the Worcester County flora, but it seems to be very local in its distribution throughout New England. I have not seen it elsewhere in the county than in the valley of the Quaboag River.

*Acer spicatum*, Lam. Several fine specimens on the steep southwest bank of the Quinebaug River in Sturbridge (altitude 590 feet). Previously reported from Princeton, where it is more abundant. Both in Sturbridge and on Mount Wachusett it is accompanied by *Rubus odoratus*, L.

*Viola rotundifolia*, L. Damp shady woods, in two or three localities in Southbridge, at altitudes ranging from 540 to 600 feet.

*Aralia quinquefolia*, D. & P. Rich woods, Southbridge; about twenty specimens at one station.

*Moneses grandiflora*, Salisb. A few specimens found June 26, 1898, in rich woods near Hatchet Hill, Southbridge (altitude 800 feet).

*Rhododendron viscosum*, var. *glaucum*, Gray. Borders of cedar-



swamp, Charlton (altitude 640 feet); with the type, but easily distinguished by its pale leaves, contrasting with the bright green ones of the type. I have also noticed a marked difference between the variety and the type in the odor of the flowers. This variety seems to be known in New England from a very limited number of stations.

*Kalmia glauca*, Ait. Cedar-swamp, Charlton (altitude 640 feet).

*Utricularia purpurea*, Walt. Walker Pond (Lake Tantasque), Sturbridge, August 13 (altitude 595 feet).

*Lonicera caerulea*, L. Wet meadows in the southern parts of Southbridge and Sturbridge (altitudes 600 to 840 feet).

COLUMBIA UNIVERSITY.

## ON THE FLORA OF CHESTERVILLE, MAINE.

C. H. KNOWLTON.

CHESTERVILLE is one of the southern towns of Franklin County, Maine. It affords a great variety of conditions for plant-life and is therefore a very interesting field of study. The northern part of the town has the ordinary hard-wood growth of the region. Near the center is a large sand-plain, known as Chesterville Plains. In the southern part is a "horseback" four miles in length, called Chesterville Ridge. This has a uniform elevation, and is very nearly straight. On each side of it are bogs and ponds.

It was my privilege, in company with Mr. H. W. Jewell of Farmington, Me., to explore partially this region, Aug. 15-17, 1899. We found the following plants, not previously reported from Franklin County, and all of them, with the exception of *Cladium*, from near the northern limit of their ranges.

*Rhus venenata*, DC. Margin of Horseshoe pond. A very rare plant north of York County.

*Decodon verticillatus*, Ell. Growing on a bog near the margin of Round pond.

*Aster nemoralis*, Ait. Bog near Locke's pond, N. Chesterville.

*Utricularia resupinata*, B. D. Greene. Very abundant on wet sandy shore, Norcross pond.

*Fimbristylis autumnalis*, R. & S. Same station, not abundant.

*Cladium mariscoides*, Torr. Same station.

*Panicum xanthophysum*, Gray. Abundant along the ridges.

*Woodwardia Virginica*, Smith. Very abundant on bog near Round pond.

Other plants of interest have been reported as follows, by Miss L. O. Eaton, of South Chesterville:

*Lechea intermedia*, Leggett. Roadside, on the Ridge, first reported by Miss Kate Furbish (1896). Its northernmost station in this section of the state.

*Viola Selkirkii*, Pursh. Abundant on a dry, sunny slope. Probably the southernmost station in Maine.

*Cerastium avense*, L. Sparingly in a field.

*Vitis Labrusca*, L. Roadside, one station. Rare so far north.

*Rosa blanda*, Ait. Rocky hillside.

*Potentilla fruticosa*, L. Sparingly on land recently used for a pasture. In Maine usually confined to river and lake shores.

*Arctostaphylos Uva-ursi*, Spreng. A large clump of these bushes on the Plains. Very rare in the interior of Maine.

*Myosotis arvensis*, Hoffm. In one place on the Ridge, in dry soil. Very local in the state.

*Solanum nigrum*, L. Growing rankly in a pasture grove. Practically its northern limit in Maine.

*Polygonum hydropiperoides*, Mx. Abundant in the Bog stream.

*Pinus rigida*, Mill. The pine of the Plains, which is perhaps its northernmost station in the state.

*Pinus resinosa*, Ait. The pine of the Ridge.

*Corallorrhiza odontorrhiza*, Nutt. Found in a swamp by Miss Florence Keyes. Its northern limit is at Farmington.

*Arethusa bulbosa*, L. Sparingly on a bog. Near its northern limit.

*Habenaria virescens*, Spreng. Found twice in old fields.

*Habenaria dilatata*, Gray. Abundant in an open swamp near the Plains. Rare southward in Maine.

*Habenaria obtusata*, Rich. Swamp near the Plains.

*Habenaria blephariglottis*, Torr. Plenty on bog near Locke's pond. Very rare north of Portland.

*Allium tricoccum*, Ait. By Little Norridgewock stream. The third station in the state.

*Carex folliculata*, L. In an old wood-road. Rare in the interior of Maine.

# STATIONS FOR SOME OF THE LESS USUAL PLANTS OF CONNECTICUT.

E. B. HARGER.

I WISH to place on record the following station for the rarer plants of this region. Most of these, so far, I know, are hitherto unrecorded.

*Nuphar minimum*, Smith. Reynolds Bridge.

*Sisymbrium Thaliaum*, Gay. Oxford. Abundant in sandy fields near the Housatonic River.

*Stellaria borealis*, Bigel. Two stations in Oxford.

*Geranium pusillum*, Burm. f. New Haven.

*Acer saccharinum*, L. and *A. Negundo*, L. occur sparingly along the Housatonic in Oxford and Southbury.

*Desmodium canescens*, D.C. West bank of the Housatonic, four miles below Derby.

*Cuphea viscosissima*, Jacq. Oxford.

*Epilobium palustre*, L. Botsford's Station.

*Gaura biennis*, L. Frequent along the Housatonic in Oxford and Southbury.

*Circaea alpina*, L. Oxford and Reynolds Bridge.

*Hydrocotyle umbellata*, L. Banks of the Housatonic at Oxford, sparingly.

*Viburnum cassinoides*, L. Oxford and Middlebury.

*Chrysopsis falcata*, Ell. Milford Point.

*Heliopsis scabra*, Dunal. At two stations in Oxford, where it persists but does not increase.

*Helianthus rigidus*, Desf. and *H. grosse-serratus*, Martens. These two species are well established in an old field at Oxford. Probably both these and the preceding species were introduced with western grain.

*Lactuca Scariola*, L. New Haven.

*Lobelia Dortmanna*, L. Quassapaug Lake, Middlebury.

*Andromeda polifolia*, L. Litchfield.

*Leucothoe racemosa*, Gray. Huntington.

*Kalmia glauca*, Ait. In a bog called Cranberry Swamp. Woodbury.

*Hottonia inflata*, Ell. East Haven.

*Onosmodium Virginianum*, D.C. Abundant near the Housatonic in Southbury.



*Cuscuta arvensis*, Beyrich. Oxford and Southbury. Probably introduced with grass-seed.

*Pentstemon laevigatus*, Solander. This appears to be frequently introduced with grass-seed, when it persists until the original plants die, but does not seem to spread. Of four stations which I have known, three are extinct. At the fourth in Southbury it still grows.

*Veronica Buxbaumii*, Tenore. Oxford.

*Utricularia intermedia*, Hayne. Milford and Botsford Station.

*U. purpurea*, Walt. Quassapaug Lake, Middlebury.

*U. cornuta*, Michx. Bethany and Woodbury.

*Lycopus sessilifolius*, Gray. Shore of Quassapaug Lake, Middlebury. This locality discovered by my father and myself in 1879 was the first station reported outside of New Jersey.

*Blaphilia ciliata*, Raf. Beacon Falls.

*Lophanthus scrophulariaefolius*, Benth. Frequent along the Housatonic and Naugatuck Rivers. Especially common between Waterbury and Thomaston.

*Chenopodium urbicum*, L. Oxford.

*Salicornia ambigua*, Gray. Lighthouse Point, New Haven.

*Betula papyrifera*, Marshall. Frequent on the mountainous ridges along the Naugatuck River near Beacon Falls.

*Populus heterophylla*, L. East Haven.

*P. monilifera*, Ait. Common along the Housatonic and Naugatuck. Extends three to four miles from the river at Southbury.

*Picea nigra*, Link. There is an area of some five acres well covered with the black spruce in a swamp at Middlebury. Also a few small trees at Bethany.

*Corallorhiza innata*, R. Br. Oxford.

*Spiranthes latifolia*, Torr. Frequent on the banks of the Housatonic from below Derby through Oxford.

*Habenaria blephariglottis*, Torr. Bethany.

*Streptopus roseus*, Michx. Monroe.

*Juncus nodosus*, L. Banks of the Housatonic. Oxford.

*Arisaema Dracontium*, Schott. Oxford. Frequent along the Housatonic. Also at East Haven.

*Sagittaria heterophylla*, Pursh. Bank of the Housatonic. Seymour. Neither the Berzelius Catalogue nor Bishop give this species, but Prof. W. A. Setchell informs me that he has collected it in the state.

*Scheuchzeria palustris*, L. Bethany and Woodbury.

- Potamogeton praelongus*, Wulf. Twin Lakes, Branford.  
*Scirpus debilis*, Pursh. Seymour.  
*Eriophorum vaginatum*, L. Middlebury and Litchfield.  
*Rhynchospora fusca*, Roem. and Schultes. Woodbury.  
*R. macrostachya*, Torr. Woodbury.  
*Carex retrorsa*, Schwein. West bank of the Housatonic River above Derby.  
*C. torta*, Boott. Common about Oxford, although not in the catalogues.  
*C. granularis*, Muhl. Oxford.  
*C. Willdenovii*, Schkuhr. East Haven.  
*C. sparganioides*, Muhl. Oxford and Reynolds Bridge.  
*C. Deweyana*, Schwein. Reynolds Bridge.  
*Tripsacum dactyloides*, L. East Haven.  
*Triodia cuprea*, Jacq. Common along the Housatonic.  
*Eragrostis Frankii*, Meyer. Common in sandy soil along the Housatonic at Oxford.  
*E. Purshii*, Schrader. Oxford.  
*Pellaea atropurpurea*, Link. Twin Lakes, Branford.  
*Woodwardia angustifolia*, Smith. Three stations in Oxford.  
*Phegopteris Dryopteris*, Fée. Monroe.  
*Cystopteris bulbifera*, Bernh. Oxford.

## NAUCORIA CHRISTINAE.

H. WEBSTER.

WHILE visiting a familiar collecting ground along the northern edge of the Blue Hill Reservation, a few years ago, the writer came upon a small but conspicuous toadstool, fruiting in the loose soil formed of decaying chestnut leaves and burs. Its dark red color and sharply-pointed cap, together with its smooth and somewhat shining surface, gave it a markedly individual character, which became more strongly accentuated on further acquaintance. For, in addition to the striking peculiarities of color and shape, an attempt to collect the plant, which stood an inch or two high, disclosed a long stem, as in *Collybia radicata*, sunk in the leaf-mould to such a depth that several inches of soil had to be removed before a complete specimen could be obtained. The difficulty of collection was much increased, also,

by the extreme fragility of the stem, which, in spite of its comparatively large size, and evidently "cartilaginous" exterior, broke frequently of its own weight as soon as the upper portion was freed from its supports.

Examination showed the plant to be a *Naucoria*, closely related to the four Friesian species *N. lugubris*, *N. festiva*, *N. Christinae*, and *N. hilaris*, of which Fries observes (*Hymenomycetes Europaei*, p. 254,) that they form a remarkably distinct natural group. Dr. Farlow, to whom the fungus was submitted for determination, referred it to *N. Christinae*, with the information that it had not before been recorded for this country.

On account of some discrepancies between the plants found and the diagnosis as given by Fries, most of which, however, can probably be reconciled, the description and the main part of the remarks given in his *Icones* (vol. II., p. 20) are translated here in order that they may be compared with notes from fresh plants:

"**AGARICUS CHRISTINAE.**—Pileus fleshy, thin, acutely conical, viscous, when moist bright cinnamon, when dry tawny, shining, growing pale; stipe fistulose, tough, deeply rooted, glabrous, dull blood-red; lamellae free, close, pallid, then bright saffron yellow.

"A most splendid fungus, with somewhat the stature of *Hygrophorus conicus*. Veil none. Stipe remarkably cartilaginous, very tough, unicolorous or paler above, at length bay, 3 to 4 inches long, 1 to 2 lines thick. Commonly with 4 to 6 elevated ridges radiating from the umbo; in wet weather sometimes strongly viscid, sometimes only moist, margin at first cracked, somewhat repand as if lobed; color varies blood-red, cinnamon, and rusty-red. Flesh thin, colorous. Lamellae, free or slightly adnexed, receding, bare (not pulverulent), somewhat spotted. Spores ferruginous."

Though young specimens are acutely conical for a long time, the mature form is very broadly conical, with a sharp umbo; the surface is smooth, but marked (under a hand lens) with fine, close lines, which radiate from the apex of the umbo; the pileus is somewhat hygrophanous, the margin faintly striate when moist, and becoming revolute with age; the crowded lamellae appear to be free, but are always slightly adnexed, with an average breadth 2 to 3 times the thickness of the cap; their color varies from pale yellow to dark ferruginous; the stem is very fragile, but on wilting becomes tough, as described by Fries; it turns black on drying, as does the whole plant. The radicating portion is three or four times as long as the part above



ground; radiating ridges appear on the pileus in process of drying, and indeed it would almost seem as if some of the characteristics given by Fries, noticeably the toughness, the ridges, and the darker tints, had been drawn from plants that had partially dried either before or after collection. At any rate it has taken partly dry material to show the characteristics just noted.

The spores are somewhat pip-shaped, more strongly pointed at one end, and somewhat flatter on one side; size 10 to 11 x 5  $\mu$ . This agrees well with Quelet's "spores amygdaloid, 10 to 12  $\mu$  long," as quoted by Saccardo.

Saccardo, on what authority does not appear, gives the spores as being 4 to 5 by 3 to 4  $\mu$ , dimensions which accord with those of the spores of *Naucoria Jennyae* Karsten, as described in Hedwigia, 1881, p. 178, a species, from its description and the author's note, evidently very close to *N. Christinae*, but said to be larger, and with lighter-colored, ovoid spores.

Fries's figure (Icones, t. 121, f. 2) agrees fairly well.

After the first collection in 1896, the plant was found in the same year in damp, mixed woods south of Houghton's Pond, in the Reservation; in 1898, August, in the original station, also in Weston, Mass., in October, on the low river bank, under chestnuts and maples, and in Melrose, Mass., under oaks on a hillside. It has also been found in the Middlesex Fells, in Lynn woods, near Worcester (Dr. G. E. Francis), near Gilead, Maine (Miss Kate Furbish), and at Centre Ossipee, N. H. (F. O. Grover). Specimens of most of these collections are in the herbarium of the Boston Mycological Club.

It is most abundant in the Melrose station, where it was found in troops of several feet in extent, and in smaller groups, but not at all caespitose. The button stages have to be sought an inch or two below the surface, for they seem to arise from the lower layers of the humus, whence the base descends sometimes into the sandy soil below, and the stipe forces the pointed pileus up through the overlying leaf-mould to the surface. In places where the ground was covered with oak leaves, the stipes were longer, firmer, and flexuous, apparently having been forced by the non-resistant nature of the loose leaves to wind about in search of an opening through which they could reach light and air. At any rate, wherever the leaves were moist and firmly packed, holes were punched clean through by the straight upward thrust of the sharp-pointed buttons.

As the stem is very apt to decay an inch or so from its base, and thus increase its natural fragility, the difficulty of collection is great, and calculated to try the patience of any one who may happen upon this interesting fungus at the end of a day's trip, and try to get good herbarium specimens of it in his last ten minutes of disposable time.

## SEAWEEDS IN WINTER.

F. S. COLLINS.

THE greater part of the collecting of algae, as well as of higher plants, is done in the summer months, or at most in the period between the spring and autumn equinoxes, and it will probably surprise those who have not already investigated for themselves, to know that the life and growth along the shore are continuous. On land the lichenologist can always find employment, and the bryologist may find fruiting mosses during the winter months, but of other land plants one finds only the memory of the past or the hope of the future.

But not much below high-water mark the condition changes, and at low-water mark winter seems to have no influence whatever. On the first day of January last, I was at a point on the shore of Long Island Sound; the day was intensely cold, the thermometer hardly above zero. As the tide receded, a film of ice almost immediately covered the rocks and the fuci growing on them; every pool was covered with ice, but on breaking this coating, algae, red, brown and green, were growing in perfection, even the most delicate, filmy *Ectocarpus*. Before the pool could freeze solid, the tide would return and break the ice, and as long as they were not actually solidified, the plants experienced no inconvenience. Plants like the fuci can even endure some hours of actual congelation and being frozen so stiff that they are brittle, if the next tide releases them.

This hardiness enables the algae to extend to the waters well up towards the poles, and to thrive in places where the summer temperature of the water is only about 36 degrees Fahr. Some of the *Laminariaceae* have even been known to grow luxuriantly and produce fruit, zoospores, during months when the water was never above 28 degrees Fahr.

It must not be supposed, however, that the vegetation on our

coast is the same at all seasons. Algae, as well as higher plants, include annuals, biennials and perennials. Nearly all of the latter have their periods of rest and periods of activity, but not all at the same seasons; some are quiescent during the summer and autumn, beginning a new growth in the winter, and reaching the highest point in the spring, others just the opposite. Some of the Laminariaceae produce a delicate frond at one season of the year, a coarse and leathery one at another; between the periods of activity is a period of rest, so that the two forms are sharply marked off. As the point of growth is at the base of the blade, the old frond is pushed up by the new, and the remains of a delicate frond may be seen at the tip of a coarse one, or a coarse frond with a delicate one forming at its base.

Biennials are not common among algae, and not clearly understood; the great majority of species are annuals, but these annuals, like death, have all seasons for their own. Some, like *Phyllitis*, may be found at any month of the year; some, like *Punctaria*, only in spring; perhaps the largest number of annuals appears in spring and summer, when shallow bays are warmed by the sun, and swarm with life; in southern New England, with *Dasya*, *Grinnellia*, *Agardhiella* and others of our most characteristic forms; but there are many winter annuals, both on the northern and the southern coasts. Some of them, like *Phaeosaccion*, are short lived, found for a little over a month, then disappearing utterly; in March this plant produces incredible numbers of zoospores, minute cells each with its hour or two of active, seemingly voluntary motion, then sinking to rest; what happens then, how the species continues, no one knows, but the next February the delicate fronds are there again.

The genus *Callithamnion*, taking it in the older sense, not as divided up at present, is almost a calendar of the seasons, from *Antithamnion Americanum* in February in Long Island Sound, to *Callithamnion corymbosum* in Massachusetts Bay in November, while the little *Rhodochorton Rothii*, continuously vegetating, begins to fruit in December and continues until March.

Why one species selects one season and another another, why *Antithamnion Americanum* forms its wonderfully delicate and bright colored fronds before the waters begin to warm with spring, while its not distant cousin, *Griffithsia Bornetiana*, comes only with the mid-summer days, we cannot even guess; there seems to be no generali-

zation that will cover these, and many similar cases. We can only observe, and hope that some time the facts will furnish the clue. And observing is a real pleasure, for those that have the time and the inclination. There are days in every winter month when the weather is mild, and a few hours at the shore on such days may show things never seen by summer visitors. It is hardly likely that picnic parties will be organized, to eat lunch on the rocks of Cape Ann or Marblehead, and gather "mosses"; but for one who has the opportunity, and a fairly robust constitution, winter collecting has a relish, which all who enjoy out-of-door exercise in cold weather will understand.

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A NEW LOCAL FLORA. — Mr. Luman Andrews, of Southington, Connecticut, has just issued a "List of the Flowering Plants and higher Cryptogams growing upon the summit of Meriden Mountain, Connecticut." We learn from the introduction that Meriden Mountain is a trap dyke, with an altitude of 1,007 feet, being, in fact, the highest of its kind in the state. The part particularly investigated was the summit of the southern terminus, comprising about twenty acres. The list, without laying claim to completeness, contains 287 species and varieties. *Rosaceae*, *Compositae*, *Ericaceae*, *Cyperaceae*, *Gramineae*, and *Filices*, are well represented, while very few *Cruciferae*, *Caryophyllaceae* and *Leguminosae* have been found, which is by no means surprising in an exposed and rather sterile area. The list is obviously the result of much conscientious field work, in which specimens have been preserved in all cases admitting of doubt. A clear photographic print of the mountain accompanies the list.

The intensive study of the vegetation of a limited and, upon the whole, rather barren tract, although offering much that is profitable and fascinating, is not very frequent. It is to be hoped that others may follow Mr. Andrews' excellent example.





RHADINOCLADIA FARLOWII, nov. gen.



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